CLEVELAND OPPORTUNITY CORRIDOR
OHIO DEPARTMENT OF TRANSPORTATION

CO Hot-Spot (Microscale) Analysis Report

Opportunity Corridor
Cuyahoga County, OH

Submitted to:

Ohio Department of Transportation
5500 Transportation Blvd
Garfield Heights, Ohio 44125

Submitted by:

HNTB Ohio, Inc.
1100 Superior Avenue
Suite 1330
Cleveland, Ohio 44114

November 2012

HNTB

EXECUTIVE SUMMARY

This report evaluates the potential air quality impacts of the proposed Preferred Alternative for the Opportunity Corridor. It was prepared in compliance with the Clean Air Act (CAA) and its amendments, related Federal regulations, Federal Highway Administration (FHWA) and Ohio Department of Transportation (ODOT) Guidance. The report presents a discussion on fine particulate matter ($PM_{2.5}$), ozone and the carbon monoxide (CO) microscale analysis for the existing (2010) condition, the anticipated first year of operation (2020) for the No-Build and Build alternatives and compares the results to the National Ambient Air Quality Standards (NAAQS). The document serves as the supporting technical data for the Opportunity Corridor Environmental Impact Statement.

The approximately 3.0 mile long Opportunity Corridor project begins near I-490 at East 55th Street at the southwest and terminate along East 105th Street near US-322 (Chester Avenue) at the northeast. The proposed alignment parallels the existing railroad transportation corridor that contains the rail lines owned and operated by Norfolk Southern (NS) and Greater Cleveland Regional Transit Authority (GCRTA) with the CSX mainline being the approximate eastern boundary of the study area. The study area consists of residential, commercial, industrial and recreational areas.

Projects listed on the Statewide Transportation Improvement Program (STIP) and/or Transportation Improvement Program (TIP) are required to have Particulate Matter ($PM_{2.5}$), ozone, and Carbon Monoxide (CO) pollutants addressed as part of the National Environmental Policy Act (NEPA) process.

Based upon a review of the project, the FHWA, United State Environmental Protection Agency (USEPA), ODOT, and Ohio Environmental Protection Agency (OEPA) have determined that the proposed Opportunity Project improvement project, PID 77333, “is not a project of air quality concern” under 40 CFR 93.123(b)(1). Therefore, a hot-spot analysis was not required since the Clean Air Act and 40 CFR 9.116 requirements were met without a hot-spot analysis.

Ozone is a regional issue and conformity is addressed through the approval of the STIP/TIP. The proposed Opportunity Corridor project, PID 77333, is included in the approved Northeast Ohio Areawide Coordinating Agency (NOACA) 2012-2015 TIP and Conformity Analysis.

The maximum 1-hour CO concentrations were 4.8 ppm for existing conditions (2010), 4.0 ppm for the 2020 No-Build, and 4.8 ppm for the 2020 Build condition. The maximum 8-hour CO concentrations were 2.5 ppm for existing conditions (2010), 2.1 ppm for the 2020 No-Build, and 2.4 ppm for the 2020 Build condition. None of these concentrations exceed either the 1-hour (35 ppm) or 8-hour (9 ppm) National Ambient Air Quality Standards (NAAQS).

Based on the air quality analysis completed for the proposed Opportunity Corridor improvement, this project will not contribute to any violation of the NAAQS.

CO Hot-spot (Microscale) Analysis Report

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1.0 PROJECT DESCRIPTION

The Opportunity Corridor project is located in the City of Cleveland, Cuyahoga, Ohio along the existing railroad transportation corridor that contains the rail lines owned and operated by Norfolk Southern (NS) and Greater Cleveland Regional Transit Authority (GCRTA) with the CSX mainline being the approximate eastern boundary of the study area. The purpose of the Opportunity Corridor project is to improve the transportation infrastructure, access, and mobility within a historically underserved, economically depressed area within the City of Cleveland. As part of this, the proposed project must support the City of Cleveland's efforts to revive and redevelop large tracks of vacant residential and industrial land within the City of Cleveland's southeast side.

The study area consists of residential, commercial, industrial and recreational areas. The zoning in the study area is extensively mixed, and land use varies from parcel to parcel. This area developed prior to the establishment of zoning codes resulting in residential properties being located immediately adjacent to industrial properties. Future development in the project study area will follow the City's comprehensive plan, which is entitled *Connecting Cleveland 2020 Citywide Plan*.

The Ohio Department of Transportation (ODOT) and the Federal Highway Administration (FHWA), in coordination with the City of Cleveland are undertaking the Opportunity Corridor project using federal funds. There are no funds in place at this time for the completion of contract plans, real estate acquisition, utility relocation or construction. Funds are in place for completion of the next phase – contract plans for the Woodland Avenue to Chester Avenue section. Funds are also in place for a portion of the real estate acquisition within this section. ODOT is investigating both traditional and Public Private Partnership (P3) opportunities for the overall project as part of the financial plan.

The proposed transportation infrastructure improvements would begin near I-490 at East 55th Street at the southwest and terminate along East 105th Street north of US-322 (Chester Avenue) at the northeast as shown in Figure 1. The facility, as proposed, would be a multi-lane urban arterial boulevard with wide outside travel lanes for shared use with bicycle traffic. The proposed boulevard would also include a multi-use path on the south side of the roadway and a sidewalk on the north side of the roadway. The proposed alignment is depressed under East 55th Street. As the project progresses to the east, the boulevard returns to existing street grade and includes signalization at major intersections. In addition to the grade separation at East 55th Street, grade separation structures are proposed for locations where the new roadway crosses the existing rail lines owned and operated by NS and GCRTA. Northeast of Kinsman Road, the mainline would be south of and parallel to Grand Avenue. At the intersection with East 79th Street, the mainline begins to turn to the northeast. From East 79th Street to Quincy Avenue, the boulevard parallels the GCRTA Red line/ NS Nickel Plate rail line trench to the north. Minor adjustments in direction occur at almost all intersections until just past East 93rd Street when the mainline begins a gradual turn to north so that it meets up with East 105th Street at Quebec Avenue. From Quebec Avenue to the northern terminus, East 105th Street would be generally widened along the existing alignment with variations to minimize impacts to adjacent buildings.

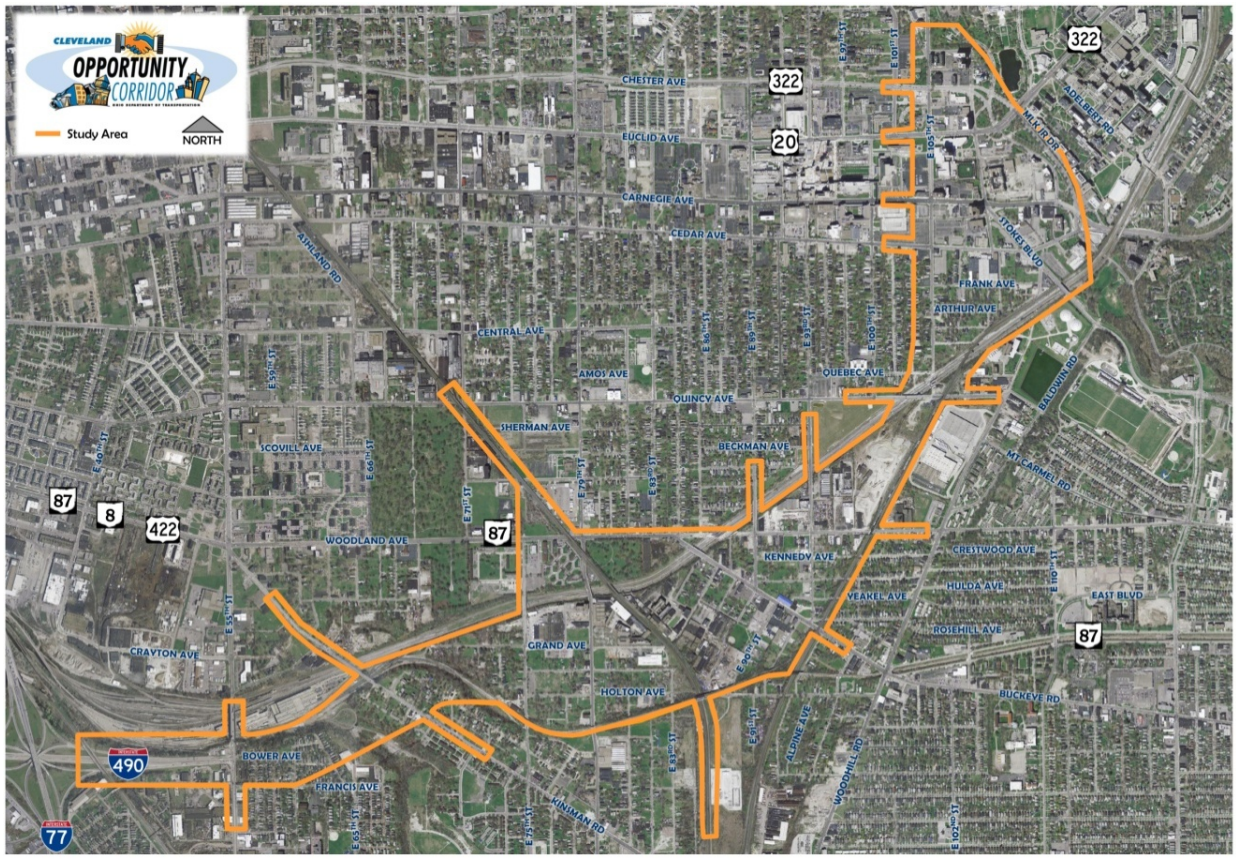

Figure 1 Project Location Map

2.0 PURPOSE OF THE REPORT

This report evaluates the potential air quality impacts of the proposed Preferred Alternative for the Opportunity Corridor. It was prepared in compliance with the Clean Air Act (CAA) and its amendments, related Federal regulations, FHWA and ODOT Guidance. The report presents a discussion on fine particulate matter ($PM_{2.5}$), ozone, and the carbon monoxide (CO) microscale analysis for the existing (2010) condition, No-Build (2020), and the anticipated first year of operation (2020) for the Build alternative and compares the results to the National Ambient Air Quality Standards (NAAQS). The document serves as the supporting technical data for the Opportunity Corridor Environmental Impact Statement.

3.0 AIR QUALITY – BACKGROUND INFORMATION

3.1 Criteria Pollutants

The Federal Clean Air Act of 1970 established the NAAQS (Table 1). These standards were established by the United States Environmental Protection Agency (EPA) to protect public health, safety, and welfare from known or anticipated effects of sulfur dioxide (SO_2), particulate matter (PM_{10}, 10-micron in diameter and smaller along with $PM_{2.5}$, 2.5 micron in diameter and smaller), carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), and lead (Pb). EPA refers to these pollutants as the “criteria” pollutants.

TABLE 1
National and Ohio Ambient Air Quality Standards (NAAQS)

Pollutant	Primary/ Secondary	Averaging Time	Level	Form
Carbon Monoxide (CO)	Primary	8 – Hour	9 ppm	Not to be exceeded more than once per year
		1 – Hour	35 ppm	
Lead (Pb)	Primary and secondary	Rolling 3-Month Average	0.15 µg/m^3 (1)	Not to be exceeded
Nitrogen Dioxide (NO_2)	Primary	1 – Hour	100 ppb[5)]	98th percentile, averaged over 3 years
	Primary and secondary	Annual Mean	53 ppb (2)	Annual Mean
Ozone (O_3)	Primary and secondary	8 – Hour	0.075 ppm (3)	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Particulate Matter ($PM_{2.5}$)	Primary and secondary	Annual	15 µg/m^3	annual mean, averaged over 3 years
		24-hour	35 µg/m^3	98th percentile, averaged over 3 years
Particulate Matter (PM_{10})	Primary and secondary	24-hour	150 µg/m^3	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxides (SO_2)	Primary	1-hour	75 ppb (4)	99th percentile of 1-hour daily maximum concentrations, averaged over 3 years
	Secondary	3-hour	0.5 ppm	Not to be exceeded more than once per year

(1) Final rule signed October 15, 2008. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

(2) The official level of the annual NO2 standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.

(3) Final rule signed March 12, 2008. The 1997 ozone standard (0.08 ppm, annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years) and related implementation rules remain in place. In 1997, EPA revoked the 1-hour ozone standard (0.12 ppm, not to be exceeded more than once per year) in all areas, although some areas have continued obligations under that standard ("anti-backsliding"). The 1-hour ozone standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is less than or equal to 1.

(4) Final rule signed June 2, 2010. The 1971 annual and 24-hour SO2 standards were revoked in that same rulemaking. However, these standards remain in effect until one year after an area is designated for the 2010 standard, except in areas designated nonattainment for the 1971 standards, where the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standard are approved.

Source: http://www.epa.gov/air/criteria.html, accessed October 10, 2012

The primary pollutants from motor vehicles are unburned hydrocarbons, NO_x, CO, and particulates. Hydrocarbons (HC) and nitrogen oxides (NO_x) can combine in a complex series of reactions catalyzed by sunlight to produce photochemical oxidants such as ozone and NO_2. Because these reactions take place over a period of several hours, maximum concentrations of photochemical oxidants are often found far downwind of the precursor sources. Ozone and NO_2 are regional problems.

Carbon monoxide is a colorless and odorless gas which is the product of incomplete combustion, and is the major pollutant from gasoline fueled motor vehicles. CO is a localized air quality issue.

Particulate matter includes both airborne solid particles and liquid droplets. These liquid particles come in a wide range of sizes. PM_{10} particulates are coarse particles, such as windblown dust from fields and unpaved roads. $PM_{2.5}$ particulates are fine particles generally emitted from activities such as industrial and residential combustion and from vehicle exhaust. Particulates from transportation can be a localized issue when a project is determined to be a project of air quality concern for either PM_{10} or $PM_{2.5}$ emissions.

An exceedance of the NAAQS pollutant level does not necessarily constitute a violation of the standard. Some of the criteria pollutants (including CO) are allowed one exceedance of the maximum level per year, while for other pollutants criteria levels cannot be exceeded. Violation criteria for still other pollutants are based on past recorded exceedances. Table 1 lists the allowable exceedances for the EPA criteria pollutants.

3.1.1 Attainment Designation

The Clean Air Act Amendments (CAAA) of 1977 and 1990 required all states to submit to the EPA a list identifying those air quality regions, or portions thereof, which meet or exceed the NAAQS or cannot be classified because of insufficient data. Portions of air quality control regions which are shown by monitored data or air quality modeling to exceed the NAAQS for any criteria pollutant are designated “nonattainment” areas for that pollutant. The CAAA also established time schedules for the states to attain the NAAQS.

States that have nonattainment areas are required to prepare State Implementation Plans (SIP) that lay out a plan to show how the state will improve the air quality to attain the NAAQS. Both new and improvement highway projects must be contained in the area’s Transportation Improvement Program (TIP). The modeling procedures for ozone and NO_2 require long term meteorological data and detailed area wide emission rates for all existing and potential sources. This modeling is performed by the Metropolitan Planning Organization (MPO) for the region to show that regional emissions plus projects in the TIP are in conformance with the SIP and the CAA amendments. The Northeast Ohio Areawide Coordinating Agency (NOACA) is the MPO for the region in which the Opportunity Corridor is located and is responsible for this analysis. Once the MPO has completed their analysis, it is forwarded to the FHWA for final ruling on the TIP’s conformance with the SIP and the CAA and its amendments.

The Opportunity Corridor project is located within the Greater Metropolitan Cleveland Intrastate Air Quality Control Region (AQCR #174). Cuyahoga County is currently in attainment status for one (1) of the seven (7) criteria pollutants, NO_2, re-classified from nonattainment to maintenance for CO, PM_{10} and SO_2 and has been classified as being in nonattainment for Pb, $PM_{2.5}$ and the 8-hour ozone standard (Moderate).

4.0 AIR QUALITY ANALYSES

Projects listed on the Statewide Transportation Improvement Program (STIP) and/or Transportation Improvement Program (TIP) are required to have Particulate Matter ($PM_{2.5}$), Ozone, and Carbon Monoxide (CO) pollutants addressed as part of the National

Environmental Policy Act (NEPA) process. Each pollutant will be addressed below presenting project specifics, ODOT's thresholds, and results of the air quality analysis.

4.1 $PM_{2.5}$ Determination

The Opportunity Corridor project, as stated in Section 3.1.1 – Nonattainment Designation, is located within a nonattainment area for $PM_{2.5}$. A review of ODOT's $PM_{2.5}$ Conformity Process Flowchart indicates that the project is not exempt from air quality conformity.[1]

Design year (2020) traffic ranges from the 48,230 average daily traffic (ADT) at the western terminus to 14,640 ADT at the northern terminus. The diesel truck percentage at the west end of the project would be 6.5%, while at the northern terminus the percentage would be 4.5%. Based on these percentages, diesel truck volumes would range from 3,135 per day at the west end to 659 per day at the north end.

These volumes, ADT and truck, are below ODOT's $PM_{2.5}$ Conformity Process Flowchart criteria of 87,500 ADT and 7,000 diesel trucks. Based upon a review of the project, the FHWA, USEPA, ODOT, and Ohio Environmental Protection Agency (OEPA) have determined that the proposed Opportunity Project improvement project, PID 77333, "is not a project of air quality concern" under 40 CFR 93.123(b)(1).[2] Therefore, a hot-spot analysis was not required since the Clean Air Act and 40 CFR 9.116 requirements were met without a hot-spot analysis. Coordination started in September 2010 and was finalized in October 2012. A copy of the agency approval correspondence is presented in Appendix A.

4.2 Ozone Conformity

Ozone is a regional issue and conformity is addressed through the approval of the STIP/TIP. The proposed Opportunity Corridor project, PID 77333, is included in the approved NOACA 2012-2015 TIP and Conformity Analysis.

4.3 CO Hot-Spot (Microscale) Analysis

CO emissions are greatest from vehicles operating at low speeds and prior to complete engine warm-up (within approximately eight minutes of starting). Congested urban roads, therefore, tend to be the principal problem areas for CO. Because the averaging times associated with the CO standards are relatively short (1 and 8 hours), CO concentrations can be modeled using simplified "worst-case" meteorological assumptions. Modeling is also simplified considerably by the stable, non-reactive nature of CO.

Projected traffic volumes along the new alignment proposed for the Opportunity Corridor will exceed ODOT's threshold of 20,000 ADT ten years after the project is completed. Therefore, a Quantitative CO analysis was prepared for this project.

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[1] <http://www.dot.state.oh.us/Divisions/Planning/Environment/NEPA_policy_issues/AIR_QUALITY/Documents/PM2Flowchart.pdf>, accessed November 8, 2012.
[2] Noel Alcala (Noel.Alcala@dor.state.oh.us), "PM2.5 Project Level Conformity Determination Request for Nonexempt Projects", e-mail message, October 29, 2012.

4.3.1 Methodology

The CO hot-spot analysis was performed according to EPA's "Guideline for Modeling Carbon Monoxide from Roadway Intersections". Intersections along the Opportunity Corridor were ranked by Level of Service (LOS), Table 2. Since only the intersection of East 105th Street and Euclid Avenue is projected to have a LOS of D, it was the only intersection modeled for the CO Microscale Analysis.[3]

Table 2 Intersection Level of Service, Opening/Design Year 2020 Opportunity Corridor

Intersection	Level of Service, AM LOS/PM LOS
	Preferred Alternative
Opportunity Corridor & East 55th Street	C/B
Opportunity Corridor & East 75th Street	C/B
Opportunity Corridor & Woodland Avenue	C/B
Opportunity Corridor & Quincy	C/B
Opportunity Corridor & Kinsman Road	C/C
Opportunity Corridor & East 79th Street	C/C
Opportunity Corridor & Buckeye Road	C/C
Opportunity Corridor & East 93rd Street	C/C
Opportunity Corridor (East 105th) & Cedar Avenue	C/C
Opportunity Corridor (East 105th) & Carnegie Avenue	C/C
Opportunity Corridor (East 105th) & Chester Avenue	C/C
Opportunity Corridor (East 105th) & Euclid Avenue	D/D

Source: Operational Analysis Technical Memorandum, PID 77333, Opportunity Corridor, Cuyahoga County, Ohio, May 2012.

The EPA's MOBILE6.2 and EPA's approved CAL3QHC 2.0 (CAL3QHC) computer models were used to analyze vehicular emissions and the hourly dispersion of CO adjacent to the intersection of 105th Street and Euclid Avenue. Traffic and emissions for the existing (2010) condition, No-Build (2020), and the anticipated first year of operation (2020) for the Build alternatives were modeled. EPA's MOBILE6.2 was used to develop vehicular emission rates. NOACA provided Cuyahoga County specific input variables for MOBILE6.2.[4,5]

[3] "Guidelines for Modeling Carbon Monoxide from Roadway Intersections", EPA-454/R-92-005, U.S. Environmental Protection Agency, November 1992, page 3-3.
[4] Bill Davis (bdavis@mpo.noaca.org), "Opportunity Corridor – CO Hot-spot Analysis", e-mail message, September 7, 2012.
[5] Vijay Nemalapuri (vnemalapuri@mpo.noaca.org), "Opportunity Corridor – CO Hot-spot Analysis", e-mail message, September 11, 2012.

CAL3QHC is a pollutant dispersion-modeling program for predicting pollutant concentrations from motor vehicles under free-flow conditions, or in the vicinity of roadway intersections. Peak traffic volumes and operating characteristics were used to analyze the intersection. Sixteen air quality receptors, A1 – A16, were placed 10 ft away from the edge of pavement, at the stop line paralleling the traffic queues and at 82 foot intervals as shown in Figure 2, page 8. Four of the 16 receptors were located at the nearest entry doors to buildings in each quadrant of the intersection. In accordance with EPA procedure, idle emission rates (in grams/hr) were calculated by multiplying MOBILE6.2's average vehicle emission rate for 2.5 mph by 2.5. Worst-case meteorological variables and an urban background CO concentration obtained from U.S. EPA AirData for the monitoring site at East 14th Street and Orange Avenue were used in the CAL3QHC model. Variables used in CAL3QHC included:

- Meteorological conditions:
  Wind speed: 1 m/s (2.2 mph), worst case.
  Wind direction: Worst case for each receptor location, calculated every 10 degrees.
  Atmospheric stability class: Pasquill Class "E"

- Surface roughness: 175 cm (68.9 in.), study area is a mixture of industrial and single family residential.

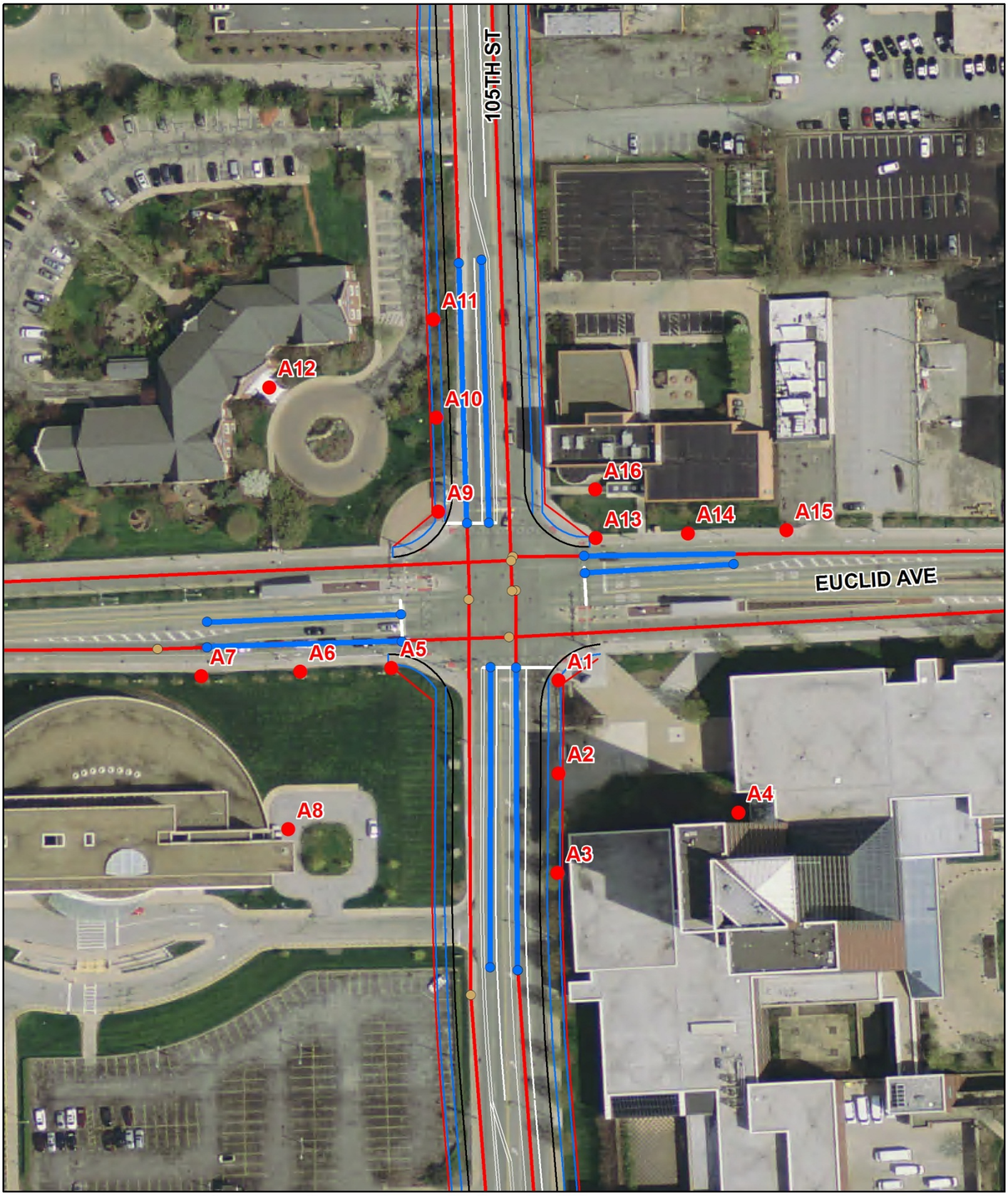
- Mixing height: 0 m (0 ft).

- Background CO concentrations: 3.0 ppm 1-hour and 1.2 ppm 8-hour, (2011 data, second highest concentration).[6]

- Existing 2010 and future 2020 CO emission factors from MOBILE6.2.

- Persistence factor of 0.7 was used to develop the 8-hour concentrations.

[6] <http://www.epa.gov.airdata>, accessed September 25, 2012.



Legend

- Air Receptor Locations
- Queue Points
- Free Flow Points
- Queue Links
- Free Flow Links

N

0 50 100 200

Feet

1 inch = 100 feet

Figure 2

CO HOTSPOT ANALYSIS

Preferred Alternative

Opportunity Corridor

Cleveland, Ohio

4.3.2 Results

The results of the CO microscale air quality modeling are presented in Table 3. The maximum 1-hour CO concentrations were 4.8 ppm for existing conditions (2010), 4.0 ppm for the 2020 No-Build, and 4.8 ppm for the 2020 Build condition. The maximum 8-hour CO concentrations were 2.5 ppm for existing conditions (2010), 2.1 ppm for the 2020 No-Build, and 2.4 ppm for the 2020 Build condition. The 1-hour concentrations include a background concentration of 3.0 ppm and the 8-hour concentrations include a background concentration of 1.2 ppm. None of these concentrations exceed either the 1-hour (35 ppm) or 8-hour (9 ppm) NAAQS.

The MOBILE6.2 and CALINE3 input and output files have been provided to ODOT on a CD.

TABLE 3

MICROSCALE AIR QUALITY ANALYSIS
MAXIMUM CO CONCENTRATIONS (ppm)

Rec.	Existing (2010)	No-Build (2020)	Build (2020)	Existing (2010)	No-Build (2020)	Build (2020)
	1 hr	1 hr	1 hr	8 hr	8 hr	8 hr
A1	4.6	3.8	4.2	2.3	2.0	2.0
A2	4.6	3.8	4.1	2.3	2.0	2.0
A3	4.7	3.8	4.3	2.4	1.9	2.0
A4	3.4	3.4	3.6	1.5	1.6	1.6
A5	4.2	3.8	4.2	2.0	2.0	1.9
A6	4.4	3.8	4.3	2.2	2.0	2.0
A7	3.8	3.8	4.2	1.8	2.0	1.9
A8	3.7	3.5	3.7	1.7	1.6	1.7
A9	4.6	4.0	4.6	2.3	2.0	2.4
A10	4.8	4.0	4.7	2.5	2.1	2.3
A11	4.5	3.8	4.8	2.3	1.9	2.1
A12	3.7	3.5	3.8	1.7	1.7	1.7
A13	4.6	3.8	4.7	2.3	1.9	2.3
A14	4.1	3.8	4.4	2.0	1.9	2.2
A15	3.7	3.6	4.5	1.7	1.8	2.1
A16	4.0	3.6	4.1	1.9	1.8	2.0

* The National Ambient Air Quality Standards for CO are 35 ppm for a one hour average, and 9 ppm for an eight hour average. Concentrations include ambient background levels of 3.0 ppm (1 hour) and 1.2 ppm (8 hour).

Indicates maximum concentration for each design year

5.0 CONSTRUCTION MITIGATION

The Opportunity Corridor's construction will take place in different locations along the corridor over a number of construction seasons. During each construction season there would be localized increased emissions from construction equipment and particulate emissions from construction activities. Particulate emissions, whether from construction equipment diesel exhaust or dust from the construction activities, should be controlled as well as possible. Contractors should follow all ODOT Standard Construction Specification Sections that address the control of construction equipment exhaust or dust during construction.

Even though construction mitigation measures are not required, there are several measures that could be considered to reduce engine activity or reduce emissions per unit of operating time. Operational agreements that reduce or redirect work or shift times to avoid community exposures can have positive benefits. Also, technological adjustments to construction equipment, such as off-road dump trucks and bulldozers, could be an appropriate strategy. The EPA recommends Best Available Diesel Retrofit Control Technology (BACT) to reduce diesel emissions. Typically, BACT requirements can be met through the retrofit of all diesel powered equipment with diesel oxidation catalysts or diesel particulate filters, and other devices that provide an after-treatment of exhaust emissions.

6.0 CONCLUSION

Based on the air quality analysis completed for the proposed Opportunity Corridor improvement, this project will not contribute to any violation of the NAAQS.

7.0 REFERENCES

Alcala, Noel (Noel.Alcala@dor.state.oh.us), "PM2.5 Project Level Conformity Determination Request for Nonexempt Projects", e-mail message, October 29, 2012.

Davis, Bill (bdavis@mpo.noaca.org), "Opportunity Corridor – CO Hot-spot Analysis", e-mail message, September 7, 2012.

"Guidelines for Modeling Carbon Monoxide from Roadway Intersections", EPA-454/R-92-005, U.S. Environmental Protection Agency, November 1992, page 3-3.

Nemalapuri, Vijay (vnemalapuri@mpo.noaca.org), "Opportunity Corridor – CO Hot-spot Analysis", e-mail message, September 11, 2012.

"User's Guide to CAL3QHC 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections (EPA-454/R-92-006)", U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Technical Support Division, Research Triangle Park, North Carolina: September 1995.

"User's Guide to MOBILE6.1 and MOBILE6.2, Mobile Source Emission Factor Model", U.S. Environmental Protection Agency, Assessment and Standards Division, Office of Transportation and Air Quality, Ann Arbor, Michigan: August 2003.

APPENDIX A
$PM_{2.5}$ Agency Approval e-mails

John Jaeckel

From: Alcala, Noel [Noel.Alcala@dot.state.oh.us]
Sent: Monday, October 29, 2012 6:45 AM
To: John Jaeckel; Hoffman, Larry; Hebebrand, Craig; Matt Wahl; Jodi Heflin; Sarah Brown; Adin McCann; Michael Zabel; Opportunity Corridor
Subject: FW: Fw: PM2.5 Project Level Conformity Determination Request for Nonexempt Projects

FYI.

If you have any questions or concerns, please do not hesitate to contact me by phone or email.

Noel Alcala, P.E.
Noise and Air Quality Coordinator
ODOT-Office of Environmental Services
Mail Stop 4170
1980 W. Broad Street
Columbus, OH 43223
614-466-5222
Noel.alcala@dot.state.oh.us
Please note: ODOT's Standard Procedure For Analysis and Abatement of Highway Traffic Noise dated June 2011 and associated noise links can be located at the following address: http://www.dot.state.oh.us/Divisions/Planning/Environment/NEPA_policy_issues/NOISE/Pages/default.aspx

-----Original Message-----
From: Leigh.Oesterling@dot.gov [mailto:Leigh.Oesterling@dot.gov]
Sent: Monday, October 29, 2012 7:41 AM
To: Alcala, Noel
Cc: Mehlo, Noel
Subject: RE: Fw: PM2.5 Project Level Conformity Determination Request for Nonexempt Projects

Noel,

FHWA concurs that the projects listed below (PID 76667, PID 84240, PID 77333, & PID 88224) are not projects of air quality concern.

Leigh

Leigh A. Oesterling, Planning & Environmental Team Leader Federal Highway Administration - Ohio Division
200 N. High Street, Room 328
Columbus, OH 43215
(614) 280-6837
leigh.oesterling@dot.gov

-----Original Message-----
From: Alcala, Noel [mailto:Noel.Alcala@dot.state.oh.us]
Sent: Monday, October 29, 2012 7:28 AM
To: Oesterling, Leigh (FHWA)

Subject: FW: Fw: PM2.5 Project Level Conformity Determination Request for Nonexempt Projects

Leigh:
I don't believe we ever received an email approval from FHWA for these projects which includes CUY-Opportunity Corridor. Can you send me something? We already received email approvals from OEPA and USEPA in Sept and Oct 2010. Thanks.

If you have any questions or concerns, please do not hesitate to contact me by phone or email.

Noel Alcala, P.E.
Noise and Air Quality Coordinator
ODOT-Office of Environmental Services
Mail Stop 4170
1980 W. Broad Street
Columbus, OH 43223
614-466-5222
Noel.alcala@dot.state.oh.us
Please note: ODOT's Standard Procedure For Analysis and Abatement of Highway Traffic Noise dated June 2011 and associated noise links can be located at the following address:
http://www.dot.state.oh.us/Divisions/Planning/Environment/NEPA_policy_issues/NOISE/Pages/default.aspx

-----Original Message-----
From: Morris.Patricia@epamail.epa.gov [mailto:Morris.Patricia@epamail.epa.gov]
Sent: Thursday, October 21, 2010 9:12 AM
To: Alcala, Noel
Cc: Schneider, Erica; Oesterling, Leigh; Braun, Paul; Bishop, Tricia
Subject: Re: Fw: PM2.5 Project Level Conformity Determination Request for Nonexempt Projects-MOT-IR70-11.04- PID 76667

Noel,
Thanks for sending this additional information. I can see from the level of service (LOS) information that the no build scenario will result in very congested and slow traffic which will be alleviated by the project. I can now agree that this project is not a project of air quality concern.
Pat

Patricia Morris
Environmental Scientist
USEPA Region 5
(312) 353-8656
morris.patricia@epa.gov

From: Noel.Alcala@dot.state.oh.us

To: Patricia Morris/R5/USEPA/US@EPA

Cc: Erica.Schneider@dot.state.oh.us, Leigh.Oesterling@dot.gov, paul.braun@epa.state.oh.us, Tricia.Bishop@dot.state.oh.us

Date: 10/20/2010 12:47 PM

Subject: Fw: PM2.5 Project Level Conformity Determination Request for Nonexempt Projects- MOT-IR70-11.04- PID 76667

Patricia:
The following is additional information, for your review, as to why we believe the subject project is not a project of air quality concern.
Please let me know if you agree that this project is not a project of air quality concern and no PM2.5 hotspot analysis is required so that we can request FHWA issuance of their project level conformity determination for this project.

The design year Level of Service (LOS) on IR70 is an LOS F under the no build scenario.
With the added lane in each direction, the LOS is expected to be generally C or better. East of SR 48, eastbound PM peak will be LOS D.
Certified Traffic for the design year Build and No Build conditions are the same.
The cars in the design year are 61,054 which is well below 125,000.
The current award date for the subject project is 2012. Assuming it is on schedule, we would expect construction to be completed and the 6 lanes open to traffic in 2014.

If you have any questions or concerns, please do not hesitate to call or send an email.

Noel Alcala, P.E., Noise and Air Quality Coordinator ODOT, Office of Environmental Services
Phone: 614-466-5222

Morris.Patricia@epamail.epa.gov

To: Noel.Alcala@dot.state.oh.us
10/07/2010 10:24 AM
cc: Erica.Schneider@dot.state.oh.us, Larry.Hoffman@dot.state.oh.us, Leigh.Oesterling@dot.gov, Mark.Carpenter@dot.state.oh.us, paul.braun@epa.state.oh.us, Tricia.Bishop@dot.state.oh.us
Subject: Re: PM2.5 Project Level Conformity Determination Request for Nonexempt Projects

Noel,

I have concerns about the MOT-IR70-11.04 project because of the 30% truck traffic and 26,000 diesel trucks in the design year.
We have been using 10,000 diesel trucks as a cutpoint for projects of air quality concern in Indiana. I believe we came up with that number because 8% of 125,000 is 10,000 diesel trucks. Please provide additional information about why that project is not a project of air quality concern.
Pat

Patricia Morris
Environmental Scientist
USEPA Region 5
(312) 353-8656
morris.patricia@epa.gov

From: Noel.Alcala@dot.state.oh.us

To: Patricia Morris/R5/USEPA/US@EPA, paul.braun@epa.state.oh.us

Cc: Mark.Carpenter@dot.state.oh.us, Larry.Hoffman@dot.state.oh.us, Erica.Schneider@dot.state.oh.us, <Leigh.Oesterling@dot.gov>, Tricia.Bishop@dot.state.oh.us

Date: 09/27/2010 12:40 PM

Subject: PM2.5 Project Level Conformity Determination Request for Nonexempt Projects

Patricia and Paul:

The projects listed below are projects that we believe are not projects of air quality concern and have met the statuatory requirements of the
Clean Air Act and are exempt from PM2.5 hot-spot analysis. See
attached project location mapping.

These projects are listed on the 2008-2011 TIP or STIP. These projects do not have an ADT >125,000 AND diesel trucks >8% in the design year.
These projects require a project level conformity determination from FHWA in accordance with 40CFR93 and the FHWA and EPA Transportation Conformity Guidance for Qualitative Hot Spot Analysis in PM2.5 and PM10 Nonattainment and Maintenance Areas. Below is the traffic information for the projects. Please let me know if you agree that these projects are not projects of air quality concern and no PM2.5 hotspot analysis is required so that we can request FHWA issuance of their project level conformity determination for these projects. A response by October 12,
2010 (2 weeks) would be greatly appreciated.

District.	Project	PID	Count	Project Description	Sponsoring Agency	Fiscal Year	Type A Existing ADT	Truck % Existing year	Diesel Trucks Existing year	Type A Design year ADT	Truck % Design year	Diesel Trucks Design year
7	MOT-CR166-7.03	82440	Muskingum	Widen CR166 from 2 to 5 lanes from Washington Church St to Yankee St	County Engineer	2011	11,850	7%	892	18,320	7%	1,379
7	MOT-IR70-16.24	76990	Muskingum	Add a third lane on IR70 in each	ODOT	2010	49,924	30%	21,400	61,054	30%	26,166

	1.04	6	n	direction and in		1							
		6	t	the median from		3							
		7	g	SR48 to Airport									
			o	Access Road									
			m	interchange									
			e										
			r										
			y										
7	MOT-S	8	M	Widen S. Dixie	City	2	16,6	3%	509	18.	3%	583	
	.	8	o	Drive from 3 to 5	of	0	40			850			
	Dixie	2	n	lanes from Elva Ct	Vand	1							
	Drive	2	t	to Crest Hill Ave	alia	4							
		4	g										
			o										
			m										
			e										
			r										
			y										
1	CUY-O	7	C	Construct a new	City	2	0	0	0	54,	11%	7,05	
2	pport	7	u	road on new	of	0				210		0	
	unity	3	y	alignment from	Clev	1							
	Corri	3	a	IR490 to University	elan	2							
	dor	3	h	Circle. The	d								
			o	subject project									
			g	involves									
			a	constructing a new									
				road on new									
				alignment from near									
				IR490 at East 55th									
				Street to East									
				105th Street near									
				US322 (Chester									
				Avenue). The									
				proposed alignment									
				parallels the									
				existing railroad									
				corridor from East									
				55th to East 105th									
				and then follows									
				East 105th Street									
				to the north.									

If you have any questions or concerns, please do not hesitate to call or send an email.

Noel Alcala, P.E., Noise and Air Quality Coordinator ODOT, Office of Environmental Services

Phone: 614-466-5222[attachment "PM2.5 coordination mapping Sept 2010.doc" deleted by Patricia Morris/R5/USEPA/US]